

Appl. No. 10/676,841
Amdt. dated September 26, 2005
Reply to Office Action of 08/25/05

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (original)An electrosurgical system, comprising:

an electrosurgical instrument that carries at least one electrode for engaging tissue;

a voltage source coupled to the at least one electrode, the voltage source defining a selected transition impedance level at which its power output-impedance curve changes from a positive slope to a negative slope; and

a controller operatively coupled to the voltage source that switches from a power control mode to a voltage control mode at or about said selected transition impedance level.
2. (original)The electrosurgical system of Claim 1 wherein the selected transition impedance level is between about 10 ohms and 500 ohms.
3. (original)The electrosurgical system of Claim 1 wherein the selected transition impedance level is between about 50 ohms and 250 ohms.
4. (original)The electrosurgical system of Claim 1 wherein the selected transition impedance level is between about 75 ohms and 150 ohms.
5. (original)The electrosurgical system of Claim 1 wherein the at least one electrode is carried in a jaw structure.
6. (original)The electrosurgical system of Claim 1 wherein the at least one electrode is operatively coupled to a matrix composition that defines a positive temperature coefficient of resistance.

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7. (original)An electrosurgical method, comprising the steps of:

providing an electrosurgical electrode having an engagement surface for engaging tissue;

providing a voltage source coupled to the electrode, the voltage source exhibiting a power output-impedance curve that defines a positive slope to an apex and then defines a negative slope with increasing impedance; and

causing ohmic heating of the engaged tissue wherein a feedback control system modulates power to the electrode when the power output-impedance curve is positively-sloped and modulates voltage to the electrode when the power output-impedance curve is negatively-sloped.

8. (original)An electrosurgical system for delivering energy to targeted tissue, comprising:

an electrosurgical instrument having a working end that carries a conductive material for engaging tissue;

an Rf source operatively coupled to the conductive material, the Rf source defining a selected transition impedance level at which its power output-impedance curve changes from a positive slope to a negative slope; and

a controller coupled to the voltage source;

wherein the controller modulates power to the working end and engaged tissue when the power output-impedance curve has a positive slope; and

wherein the controller modulates voltage to the working end and engaged tissue when the power output-impedance curve has a negative slope to prevent any arc of Rf energy.

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9. (original) The electrosurgical system of Claim 8 wherein said transition impedance level is between about 10 ohms and 500 ohms.

10. (Currently Amended) An electrosurgical jaw structure for delivering energy to engaged tissue, the structure comprising:

first and second openable-closeable jaw members, at least one jaw member defining a first peripheral portion and a second central portion wherein the second portion is recessed relative to the first portion;

at least one jaw carrying a conductive material; and

an Rf source operatively coupled to the conductive material.

11. (Currently Amended) The electrosurgical jaw structure of Claim 10, wherein the second portion is recessed relative to the first portion by at least about 0.0005 inch.

12. (Currently Amended) The electrosurgical jaw structure of Claim 10, wherein the second portion is recessed relative to the first portion by between about 0.0005 inch and 0.020 inch.

13. (Currently Amended) The electrosurgical jaw structure of Claim 10, wherein the second portion is recessed relative to the first portion by between about 0.001 inch and 0.010 inch.

14. (Currently Amended) The electrosurgical jaw structure of Claim 10, wherein the second portion is recessed relative to the first portion by between about 0.003 inch and 0.007 inch.

15. (Currently Amended) The electrosurgical jaw structure of Claim 10, wherein the conductive material is carried in the second portion.

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16. (Currently Amended) The electrosurgical jaw structure of Claim 10, wherein the conductive material comprises at least in part a positive temperature coefficient material.

17. (Currently Amended) An electrosurgical jaw structure for delivering energy to engaged tissue, the structure comprising:

first and second paired jaw members each defining a respective surface engagement plane for contacting tissue, the paired jaw members moveable between an open and closed position;

the paired jaw members defining a peripheral portion and a central portion;

wherein the paired jaw members in the closed position define an engagement gap between respective engagement planes that has a first dimension in the peripheral portion and a second dimension in the central portion, and wherein said second dimension is greater than said first dimension.

18. (Currently Amended) The electrosurgical jaw structure of Claim 17, wherein the difference between said first and second dimensions is at least about 0.0005 inch.

19. (Currently Amended) The electrosurgical jaw structure of Claim 17, wherein the difference between said first and second dimensions is at least about 0.001 inch.

20. (Currently Amended) The electrosurgical jaw structure of Claim 17, wherein the difference between said first and second dimensions is at least about 0.003 inch.

21. (Currently Amended) The electrosurgical jaw structure of Claim 17, wherein said second dimensions is at least about 110% of said first dimension.

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22. (New) The electrosurgical jaw structure of Claim 11, wherein the recessed portion is configured to form a seal against engaged tissue to trap vapor and liquids to denature protein within tissue proximate the recessed portion.

23. (New) The electrosurgical jaw structure of Claim 17, wherein the central portion is configured to form a seal against engaged tissue to trap vapor and liquids to denature protein within tissue proximate the recessed portion.

24 (New) The electrosurgical jaw structure of Claim 17, wherein the engagement gap is sufficient to trap vapor and liquids to denature protein within tissue proximate the central portion.